Section 1
Introduction

This document presents the Revised Final Baseline Ecological Risk Assessment (BERA) for the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site (API/PC/KR) in Southwestern Michigan. The revisions forming the basis of this revised final document address recent comments on the Final (Revised) BERA (January 2002), the Final BERA (June 1999) and the Addendum to the BERA (August 15, 2000); comments were submitted by the U.S. Environmental Protection Agency (EPA), the U.S. Fish and Wildlife Service (FWS), and the Kalamazoo River Study Group (KRSG).

KRSG comments (and those of Giesy Ecotoxicology, Inc.) were presented in letters (July 19, 1999 and September 11, 2000) from KRSG to the Michigan Department of Environmental Quality (MDEQ). In addition, a Technical Memo and letter (October 11, 2001) from KRSG to MDEQ summarized preliminary data obtained by KRSG. Included in this document were preliminary data, evaluations, and conclusions potentially relevant to information presented in the Final (Revised) BERA, dated January 2002. Some of the information presented by the KRSG resulted in a more intensive review of toxicity literature associated with the derivation of appropriate dose-based TRVs for mink and birds. PCB exposure data presented in the October 11, 2001 KRSG document were considered preliminary, and therefore are not included in this revised final BERA. Data such as these may be considered in the future.

EPA and FWS comments were identified in several meetings and telephone conversations throughout summer and fall 2000. Additional comments were received from EPA in spring and summer 2001 through meetings in Benton Harbor and Chicago. The MDEQ has worked closely with EPA from 2001 to 2003 to finalize this risk assessment document.

This assessment uses site-related chemical concentrations, exposure potential, and toxicity information to characterize potential risks to ecological receptors from releases of polychlorinated biphenyls (PCBs) to the Kalamazoo River ecosystem. Risks are estimated assuming no remedial action has occurred at the site, and are intended to assist the risk manager in determining the acceptable clean-up levels to protect ecological receptors.

1.1 Report Objectives

ERAs evaluate the likelihood that adverse ecological effects may occur or are occurring at a site as a result of exposure to single or multiple chemical or physical stressors (EPA 1992a). Risks result from contact between ecological receptors and stressors that are of sufficiently long duration and of sufficient intensity to elicit adverse effects (EPA 1992a). The primary purpose of this ERA is to identify and describe actual or potential onsite conditions that can result in adverse effects to present or future ecological receptors. Sufficient recent site-specific information is

available to allow this ERA to focus on the primary ecological stressors present at this site. These primary stressors have been identified as polychlorinated biphenyls (PCBs). This ERA focuses on comparing measured or estimated PCB exposures with observed or predicted biological effects. This ERA also provides information that can help establish remedial priorities and serve as a scientific basis for regulatory and remedial actions for the API/PC/KR.

1.2 Report Organization

The approach used to conduct this ERA is based on site-specific information and on recent EPA guidance, primarily Ecological Risk Assessment for Superfund: Process for Designing and conducting Ecological Risk Assessments (EPA 1997), supplemented by The Framework for Ecological Risk Assessment (Framework Document, EPA 1992a). EPA (1989, 1992a, 1997) and others (e.g., Barnthouse, et al. 1986) recognize that methods for conducting ERAs must be site-specific, and guidance documents for conducting ERAs are therefore not intended to serve as detailed, specific guidance. As much as practicable, the methods, recommendations, and terminology of the 1997 guidelines for ecological risk are used to conduct this ERA. The organization of this ERA follows the format presented in this document, with some modifications made for site-specific considerations and readability. Following this introduction, a short description of the site is presented in Section 2. The primary components of this ERA are:

- Problem Formulation (Section 3) which describes the goals, scope and focus of the ERA;
- the Analysis Phase (Section 4), which evaluates the data used to assess exposures for local flora and fauna;
- and the Risk Characterization (Section 5), which discusses the risks identified by this ERA. Additionally, Section 5 describes remedial goals for PCBs in sediments, surface water, and floodplain soils associated with the Kalamazoo River.
- References for all sections are provided in Section 6.